International Journal of Independent Research Studies
Vol. 15, No. 5, 1-8, 2026
ISSN(E) 2226-4817
DOI: 10.55220/2304-6953.v15i5.1333

Bibliometric and Empirical Analysis of Volatility Dynamics in Emerging Markets: Policy Uncertainty, Global Spill-through, and Modern Forecasting Approaches

Kemal Berkay AKTAŞ

Independent Researcher, Turkey.

Abstract

As financial globalization intensifies, equity volatility in emerging markets (EM) is getting more complicated and non-symmetric. The EM volatility literature from 2010 to 2026 is comprehensively analysed in this study by applying systematic literature review (SLR) and PRISMA protocol. The detailed bibliometric mapping carried out as part of the study reveals that, while a stationary model is prevalent in the literature, newer forecasting methods such as Dynamic Model Averaging (DMA) can easily identify regime shifts and structural breaks and GARCH-MIDAS can combine low and high frequency data. The results show that Economic Policy Uncertainty (EPU), international liquidity cycles, and energy shocks are the primary drivers of next-generation systematic volatility, along with the Covid-19 pandemic, geopolitical risks and cryptocurrency diffusion channels. The research aspires to fill the void of a more proactive risk management approach to the risks of international interconnectedness networks and to the creation of more resilient policy mechanisms to face up to the risks of digital contagion channels, in providing an empirically based strategic decision-support guide for policy makers and portfolio managers.

Keywords: Bibliometric analysis, Econometric forecasting models, Economic policy uncertainty, Emerging markets, Volatility spillover.

1. Introduction

In financial markets, volatility refers to the degree of variability in asset prices over a specific period, but essentially it is a numerical and statistical manifestation of market participants' perception of uncertainty about the future. Since Harry Markowitz's (1952) Modern Portfolio Theory, the measurement and estimation of volatility is one of the most central research areas in financial economics in the literature. But traditional financial theory's assumptions of "normal distribution" and "constant variance" fail to always hold true in a real market, particularly the "leptokurtic" distributions and "jumps" of emerging markets (EM). The Efficient Market Hypothesis (EMH) was formulated by Eugene Fama in 1970, stating that the stock market is efficient in the sense that it simultaneously and rationally reflects all available information, meaning that the volatility is just a by-product of the new information. By contrast, periods of macroeconomic shocks like the Asian financial crisis of 1997, the global financial crisis of 2008 or the current COVID-19 pandemic have empirically shown that shocks can also be triggered by structural weaknesses in market architecture, system failures and liquidity shocks as well as rational information flow. In this sense, volatility is a risk metric not just for market participants, it is also a metric of the most important efficiency of information processing and market resilience.

In developed markets, individual investors play a smaller role, whereas emerging markets (EMs) have higher levels of individual investor participation and, therefore, greater behavioral biases. In markets of this sort, in which arbitrage opportunities are scarce and expensive, irrational behavior by "noise traders" may cause the volatility of these prices to be separated from the underlying fundamentals of the market (Shleifer and Vishny 1997). Barberis and Thaler (2003) conclude that investor instincts, like "overconfidence," "herding behavior" and "loss aversion," lead to a greater reaction to negative market news than to positive news. As per the literature this phenomenon is called the "leverage effect," in which a downturn in financial asset returns produces even more volatility in the future than a rise in returns. In emerging economies, when investor sentiment dominates sentiment, especially in countries with high inflation and exchange rate volatility, stock market volatility tends to have a reinforcing effect on itself, which works regardless of macroeconomic fundamentals. In the recent literature, Jiang et al. (2023) have shown that financial uncertainty has a permanent and positive impact on the trend component of the market volatility in China. These show that emerging markets' volatility is not only a short-term phenomenon, but also a structural one as a consequence of macroeconomic uncertainty.

One of the factors that sets emerging market economies apart from the rest is the instability of their institutions, and the vulnerability of the markets to external uncertainties. The volatility seen in the EM markets when they became part of the global financial system and liberalization processes was first described by pioneering research from Bekaert and Harvey (1997). Even slight slowing down of global capital flow at any time, as would happen on the sudden reversal of exchange rate regimes, current account deficit problems, or political instability, can disproportionately affect such markets. An indicator of uncertainty in these markets as well as a structural parameter directly affecting the risk premium demanded by investors, Economic Policy Uncertainty (EPU) was introduced by Baker, Bloom and Davis (2016). When EPU increases, volatility clustering in EM markets becomes long-lasting and has more devastating effects. This reaffirms the fact that volatility in emerging markets is not only a mere price swing, but also becomes structural, as a reflection of macroeconomic and political uncertainties.

In today's financial landscape, none of the markets remain unaffected by the shift in world risk appetite. Interconnectedness between markets is not just a crisis phenomenon, as Forbes and Rigobon (2002) note, but a normal- and crisis-time phenomenon, albeit at a much faster pace during a crisis when the interconnectedness is referred to as "financial contagion. The transmission channels are more profound than ever before— as “Black Swan” events like COVID-19 have shown. Recent research by Zaremba et al. (2020) and Ashraf (2020) shows that the uncertainty generated by the global health crisis resulted in a much more rapid volatility explosion in emerging markets than occurred during the 2008 crisis. Economic data was not the only thing creating volatility during this time; fear and uncertainty and government lockdown decisions played a huge role. This situation is an example of the financial volatility that is not only an economic phenomenon but also a hybrid one with a very social and global sensitive risk structure.

While there are thousands of studies in the literature concerning volatility, much of them have only been conducted in one country or they have only used a specific econometric model. The purpose of this article is to bring together, from a systematic point of view, the huge amount of literature produced in emerging markets in the past two decades, to provide a synthesis. The study provides a thorough bibliometric mapping to determine the main trends in existing literature and introduces empirical evaluations of the performance of some of the most recent forecasting models used for the empirical analysis of modern EM markets, including GARCH, HAR, GARCH-MIDAS and DMA, considering the specific dynamics of EM markets (policy uncertainty, commodity shocks, cryptocurrency spillovers). The research is designed to not only give investors and policymakers a retrospective review but also to lay out a strategic roadmap for investors and policymakers to manage risks moving forward.

2. Methodology and Research Design

The methodology used in this study is Systematic Literature Review (SLR) which aims to analyze the intellectual structure, methodological transformation, and conceptual evolution of the literature of volatility, especially in emerging markets (EM). SLR is different than the traditional and subjective narrative review because it is a process defined and verifiable, aimed at finding answers to a predetermined research question, while minimising the researcher's bias. The methodological approach aims at detecting main trends in literature, categorizing the most popular empirical models (GARCH, DMA, HAR, GARCH-MIDAS, etc.) and scientifically rigorously defining unfilled research gaps. The systematic approach ensures the scientific validity and generalizability of the results to global financial literature, as the synthesized articles are of high academic quality and relevant to the topic.

All stages of the review process were carried out accordingly with the PRISMA protocol (Preferred Reporting Items for Systematic Reviews and Meta-Analyses), considered the "gold standard" in the international academic platforms, developed by Moher et al. 2009. The strict application of the PRISMA protocol ensures that the article also has the methodological transparency of the article and that other researchers can replicate the study by accessing the same data set and query parameters (replicability). The review process was organized in four critical steps and followed the guidelines of PRISMA:

1. Identification: Thorough initial search in well-known databases according to the identified key words.
2. Screening: Identifying duplicate studies and then conducting some initial filtering at the title and abstract levels.
3. Eligibility: Reading of the full texts of the remaining articles to establish the empirical depth of the study, the validity of the econometric model included and the market studied and the interest of the EM market.
4. Inclusion: Production of final set of articles to be analysed in the two ways: bibliometric network analysis and qualitative content synthesis.

The selection of Scopus database as the main data source of this study was based on the scope, bibliographic data quality, and capability of citation tracking. Scopus is the most reliable source for the metadata for a technical and multidisciplinary subject such as "Emerging Markets and Volatility", as it will include all of the most reputable journals on finance, economics and econometrics literature, including the Journal of Finance, Review of Financial Studies, Journal of Forecasting. The data collection process was updated as of January 2026 and in order to minimize conceptual confusion in the literature, the following advanced Boolean query structure was used in the search query: (“stock market” OR “equity market”) AND (“volatility” OR “return volatility”) AND (“emerging markets” OR “developing economies”) AND (“spillover” OR “connectedness”) AND (“policy uncertainty” OR “EPU”). It is an optimized search strategy that will capture not only the general concepts such as "stock" and "volatility," but also all good studies that focus on "dissemination channels" and "policy uncertainty," the originality of this article.

The dataset has been carefully filtered in order to ensure a high academic quality and empirical standards. Following Snyder's methodological recommendations (2019), only original research articles, published in English and peer-reviewed that followed the “Double-Blind” peer-review process were analyzed. Editor's notes, book reviews, conference proceedings, editorial comments and short reports which are not available in full text have been omitted from this article because they might reduce the scientific content of the article. The subject category restrictions were "Business, Management and Accounting" and "Economics, Econometrics and Finance" so as not to stray outside the realm of financial econometrics. Moreover, the only volatility considered in the financial markets was the price and return volatility and other secondary markets like agricultural economics, real sector productivity or the labor market have not been included to avoid contaminating the study.

The science mapping (bibliometric network analysis) methods were used to build an intellectual map of the literature analyzed, identify hidden links and visualize the evolution of themes over time. For this, the following two software ecosystems were used:

1. VOSviewer (v.1.6.20): Developed by Van Eck and Waltman (2010), this tool was used as the primary platform for network-based visualizations and clustering analyses. The conceptual structure of the literature was determined through "co-occurrence analysis" performed via the software; and author groups and schools of thought adopting similar methodological approaches were mapped through "bibliographic coupling" analysis. In the analysis, the "Fractional Counting" method was preferred to increase the readability and statistical significance of the network, and the weight of multi-authored articles on the network was fairly normalized.
2. R-Bibliometrix and Biblioshiny: This advanced R library, presented by Aria and Cuccurullo (2017), has been used in "Thematic Evolution" and "Three-Fields Plot" analyses of the literature. Using this tool, it has been scientifically proven, through time-series-based thematic maps, how the discussions of stationary volatility in the early 2000s evolved into dynamic and hybrid themes such as "Economic Policy Uncertainty," "Black Swan Events," and "Cryptocurrency Spread" in the present day.

Using VOSviewer and Bibliometrix algorithms, the literature was analyzed for its intellectual structure and conceptual density. Table 1 demonstrates the significant thematic clusters and their respective significance, as determined by the literature.

Table 1. Thematic Clusters and Key Concepts in the EM Volatility Literature.

Cluster	Key Concepts	Focus
Cluster 1: Systematic Risc	Spillover, Connectedness, Contagion	Inter-market volatility transfer and contagion effect
Cluster 2: Uncertainity	EPU, Geopolitical Risk, Gold	Policy uncertainty and the search for safe haven assets
Cluster 3: Methodology	GARCH, DMA, GARCH-MIDAS	The evolution of volatility forecasting and modeling techniques
Cluster 4: Next Generation	COVID-19, Bitcoin, Fintech	The pandemic shock and the market integration of digital assets

3. An In-Depth Analysis of The Dynamics Driving Volatility in Emerging Markets

Economic Policy Uncertainty (EPU) is a temporary external shock to the emerging markets (EM) and is also a structural risk shaking the basis of financial architecture. The index was first introduced into the literature by Baker, Bloom and Davis (2016) and measures the uncertainty surrounding government tax policies, spending and regulatory policies based on the density of these elements in newspaper articles. In emerging markets, the less reliable institutional trust mechanisms and legal predictability results in a “paralyzing” uncertainty for investors when responding to EPU signals. Gulen and Ion's (2016) ‘irreversibility of investment' theory suggests that firms and institutional investors indefinitely delay investment projects in the presence of the policy front-on conflicting signals, which, in turn, create room for sharp stock market index declines and volatility clustering. Empirically the literature concludes that the relationship of economic policy transparency on the equity markets has a "non-linear" nature, especially in high growth potential economies with high political sensitivity like China, India, and Turkey. This can result in a geometric and not arithmetic rise in volatility, if uncertainty reaches a certain level, which can trigger a systemic crisis. Consequently, the lack of policy transparency in emerging market economies permanently increases investors' risk premium and distances the market from rational pricing mechanisms.

The volatility of emerging markets is largely synchronized with the monetary policies implemented by developed country central banks (primarily the US Federal Reserve - Fed and the European Central Bank - ECB) and the abundance of global liquidity. As detailed in the pioneering article by Bekaert and Harvey (1997), financial liberalization processes have opened EM markets to global capital while simultaneously making them vulnerable to fluctuations in global risk appetite. Short-term portfolio investments, conceptualized in the literature as "Hot Money," act as a "double-edged sword" for EM economies. In conjunctures of abundant global liquidity and high-risk appetite, these capital flows can artificially suppress volatility by dominating local stock markets upwards. However, capital flight, triggered by the start of interest rate hike cycles in developed countries or the increase in global geopolitical risks-and documented in the literature with Forbes and Warnock's (2012) "Sudden Stops" analysis-leads to liquidity shocks and record volatility in local markets. By this point, the "global fear indicator" (VIX) is a much more important forward indicator for EM investors than domestic inflation or growth data. It is an empirical fact that a rise by one unit of the VIX index does lead to much more significant selloffs and volatility outbursts in emerging markets, by a multiplier effect.

In most developing economies, the production structure relies on energy imports, so any changes to international oil and natural gas prices directly affect stock market movements. In a previous research, Zhang et al. (2019b) found that the pass-through coefficient of volatility changes in real-time of oil price shocks in EM markets is not constant but time-varying and accentuated in particular during crises. The interaction is not confined to the overall level of the index; it is present at the sectoral volatility level when considering energy intensive sectors like transportation, petrochemicals and heavy industry and manufacturing. Things will be unpredictable for energy prices, on the one hand because it will directly impact corporate profitability if energy prices spike up, and on the other hand because it will force central banks to raise interest rates, which will lead to pressure on the stock markets, because the discounted cash flows models of stock valuation will be affected. In commodity exporters such as Brazil and South Africa—countries that have emerged market economies—on the other hand, commodity price drops are causing a similar destructive spiral of volatility, current account deficit concerns, and disrupting terms of trade. This is a case of “Commodity-Stock Connectedness” cancelling out diversification benefits in times of global contraction and risk being localised at one point.

In the first quarter of 2020, the whole world has been struck by the COVID-19 pandemic and it has become the most dramatic and instructive example of the "Black Swan" theory in modern financial literature. Empirical research by Zaremba et al. (2020) and Ashraf (2020) in over 80 markets worldwide showed that the increase in market volatility triggered by the COVID-19 pandemic had taken a dramatic path, unlike that of the Great

Depression (1929) and the Global Financial Crisis (2008). The dramatically variable outlook of emerging market economies in the pandemic was not just the near shutdown of real economic activity, but also the vast information uncertainty generated by the instruments used by governments to intervene in the economy, such as "quarantine decisions," "travel restrictions" and "stimulus packages." In fact, Chowdhury et al. (2022) discovered a direct positive correlation between the daily standard deviations of stock market indices and the spread rate of infection and mortality rate. In this time emerging markets have become the very laboratory of the phenomenon of "health-to-finance contagion. Our bibliometric network analysis also shows that in the post-pandemic period literature has changed from the traditional risk measures to a vast sub-discipline of financial risk and health that has been labelled as "Financial spread channels of infectious diseases.

Traditional volatility channels have been expanded and now extended into a digital space, as the financial markets are digitalized and blockchain technologies are applied to traditional financial instruments. Using complex network analysis, Zeng, Yang, and Shen (2020) demonstrate that the connectivity of the Bitcoin network as well as other major crypto-currencies with traditional stock markets has significantly grown in recent years, particularly since 2020, when interest rates are lower. There are "sentiment spillover" bridges between these two asset classes because emerging market investors are interested in crypto assets because of their potential to hedge against high inflation or to generate high returns in a short period. Sudden liquidity crises, cyberattacks or regulatory news on cryptocurrency exchanges can affect the overall risk appetite of EM investors within seconds, triggering sharp sell-offs and volatility spikes in traditional stock markets as well. Corbet et al. The study from (2018) showed that crypto assets were not just a niche topic of speculation anymore, but rather systemic players that seem to regularly "export" volatility to emerging markets, as pointed out in the introduction. This requires traditional risk-management tools to be adapted to digital assets' dynamics, both by portfolio managers and by policy makers.

4. Technical Analysis and Empirical Performance Comparisons of Volatility Prediction Models

Engle's ARCH model and Bollerslev'S GARCH (both from 1982 onwards) were instrumental in understanding time-varying volatility during the historical development of volatility modeling in financial econometrics literature. These models are considered to be revolutionary approaches. Although the GARCH (1,1) model remains widely accepted as the most fundamental system in developed markets today, the emerging markets' unique and noisy data structure poses significant challenges to these models. The yield series in EM markets generally exhibit a structure that deviates from normal distribution, displaying high kurtosis and fat-tail characteristics. As emphasized in the famous empirical study by Hansen and Lunde (2005), which comprehensively compared more than 300 volatility models, no single model can perform best in every conjuncture; However, when it comes to emerging market (EM) markets, standard symmetric GARCH models tend to underestimate risk estimates, failing to capture sudden jumps and structural breaks in the market. To overcome this methodological bottleneck, models such as EGARCH and GJR-GARCH, which assume that the volatility created by negative shocks is more severe than that created by positive shocks and take into account the asymmetric structure defined as the "leverage effect," have been found to yield much more consistent results in modeling the "sensitivity to bad news" in EM markets.

Because market participants do not have a homogeneous structure, but rather have different time horizons (investment horizons) such as day speculators, weekly fund managers, and long-term institutional investors, Corsi (2009) introduced the Heterogeneous Autoregressive (HAR) model to the financial literature. The critical importance of the HAR model for emerging markets is that it can model the "long-memory" effect in these markets through a relatively simple and flexible autoregressive structure without the need for complex fractional integration methods. The inability to fully achieve information efficiency in emerging markets leads to the impact of past price movements on the future being felt for a much longer period, causing volatility to carry a "memory". The HAR structure filters out instantaneous noise in the market by decomposing realized volatility into its daily, weekly, and monthly components, and meets the need for "forecast robustness" emphasized by Clements and Hendry (1998). Our bibliometric analysis findings indicate that, especially with the increasing use of high-frequency (intra-day) data, the HAR model has become one of the most robust methods for predicting the complex and nonlinear dynamics of emerging market economies with minimal error margin.

The idea of a volatile stock market in emerging markets is a reflection of the past does not make the present volatile. Thanks to the deep relationship that exists between EM market volatility and the macroeconomic fundamentals and political uncertainty (PU), the GARCH-MIDAS model has been a central focus of academic research. This innovative idea, developed by Engle, Ghysels and Sohn (2013), allows data to be of different frequencies (such as daily stock market data and monthly data on inflation, industrial production, and oil prices) to be mixed into an econometric equation. GARCH-MIDAS offers a way to perform such analysis in a transparent manner: it permits the capture of the "long-term trend" (low-frequency component) behind daily changes in stock market indices, which is almost impossible with traditional low-frequency models. This model is in line with Beltratti and Morana's (2006) principle of incorporating structural change into the analysis, and it is able to differentiate between "transient noise" and "permanent structural volatility" in the market. Especially during periods when exchange rate instability and economic policy uncertainty (EPU) disrupt macroeconomic balances, the GARCH-MIDAS model provides portfolio managers and policymakers with a much more reliable and data-driven risk projection, making a critical contribution to their decision-making processes.

The so-called "time-invariant parameters" assumption in models is totally inappropriate in the financial markets, particularly emerging markets' markets in the time of crisis and stress. Koop and Korobilis (2012) have developed algorithms that mitigate this variability and uncertainty, namely Dynamic Model Averaging (DMA) and Dynamic Model Selection (DMS). The DMA methodology dynamically changes which explanatory variable (e.g. the price of oil, exchange rates, VIX index, EPU) will be used by the model, and the time and extent to which that variable will be used. A static model is mathematically very difficult to "work" in the long-term in a setting with "regime changes" and sudden changes in policy, like in an emerging market economy. The DMA approach has been proved in empirical studies by Zhang et al. (2020a) to be the best combination of volatility information leaked from foreign markets and the local stock market data in terms of minimum forecasting error (MSE/MAE). This produces a “meta-forecasting” mechanism which pools the forecasting ability of all available models with data-based weights instead of ranking models, allowing the fastest adaptation to structural shifts in the market.

The latest developments in the literature have been on the hybrid use of traditional econometric models and artificial intelligence/machine learning models. Deep learning architectures, especially LSTM (Long Short-Term Memory) models, have begun to outperform the classical GARCH models in describing non-linearities in emerging market economies (EM). In our bibliometric analysis, volatility is emerging as a new theme predicted not only using historical data, but big data analytics and social media sentiment analysis. Hybrid models are the statistical solution of GARCH models paired with the flexibility of learning from artificial intelligence, a new approach in predicting the "Black Swan" volatility experienced by EM markets. This technological shift is a clear example of a paradigm shift in financial risk management from the past to a simulation of the future, with algorithms working with data in real time.

Loss functions like Mean Squared Error (MSE) and Mean Absolute Error (MAE) are typically used to assess the performance of volatility forecasting models. Although it is difficult to reduce the errors on high variance days in emerging market (EM) markets using GARCH models, empirical studies demonstrate that HAR models, due to their "memory" structure, have a more stable pattern of MAE values. The advantages of GARCH-MIDAS do not only come in the form of low error margin but also from the "economic significance" of the model. The flexible structure of the parameters makes it possible to change over time and results in lowest RMSE values, in the case of recovery phases immediately after crises, which is an undeniable advantage over static forecasting methods, such as DMA.

Considering the structural characteristics of emerging markets (EM), the shock-capturing capacities of the econometric models used differ. The technical advantages in transitioning from traditional models to modern dynamic approaches and the suitability of these models for EM markets are summarized comparatively in Table 2.

Table 2. Technical Comparison of Basic Volatility Forecasting Models Used in Literature.

Model	Data Frequency	Key Advantage	Suitability for EM Markets
GARCH(1,1)	Daily	It captures volatility clustering	Used as a benchmark; weak in asymmetric shocks
HAR-RV	High Frequency	It divides the investor's horizon	This model best captures the effect of long-memory
GARCH-MIDAS	Mixed (Daily/Monthly)	It incorporates macro economic data into the model	It is ideal for measuring the impact of EPU and inflation
DMA / DMS	Daily/Weekly	Updates weights in real time	It is most successful during times of crisis when regime changes occur

5. International Volatility Spread and Connectivity Analysis: A Global Network Perspective

The interaction between financial assets cannot be explained by using simple and static correlation analyses, because of the radical integration process that the global financial system has been going through. Volatility spillover is generally referred to in modern literature as the propagation of a shock or uncertainty from one market to another by trading-related, financial integration-related or investor sentiment channels. The connectedness methodology, which was derived by Diebold and Yılmaz (2012, 2014) using the variance decomposition technique, has become a regular part of the literature for estimating this intricate interaction. This approach not only brings to light the relationships between the different markets, but also indicates which market(s) "export volatility" (net transmitter) and which market(s) "import volatility" (net receiver) through the use of directional spillovers. This network architecture tends to be asymmetric for emerging markets (EM) and shocks in developed markets (DM) reach EM markets at a nonlinear pace during global crises, potentially rendering the macroeconomic fundamentals of these markets inoperable. As pointed out by Kenourgios et al. (2011), this is what they call "financial contagion" and can lead to a structural failure and increase in interdependency between the markets in a crisis situation.

Study results on the volatility spillover and market interdependence from the literature are vital to understand the market reactions during the crises. The following Table 3 presents the main findings of empirical research used for the theoretical framework of this study and the key markets.

Table 3. Summary of Selected Key Literature on Volatility Spillover and Determinants.

Author (Year)	Market under review	Key Finding
Baker et al. (2016)	Global Markets	Increased EPU (Energy Market Purchase) has proven to persistently increase stock volatility
Diebold & Yılmaz (2014)	Advanced and EM	It has been observed that inter-market interconnectedness surges during times of crisis
Zaremba et al. (2020)	Emerging Markets	COVID-19 interventions triggered market volatility more than crises themselves
Zeng et all. (2020)	Crypto & Traditional	Bitcoin has become an actor exporting volatility to EM markets

Our bibliometric mapping results are a clear example of how volatility diffusion is influenced at both a global and regional level, in the sense of 'core-periphery' relationships. The literature focuses on the two emerging markets blocs – Latin American and Asian – because they share distinct volatility features. Assaf et al. (2025) test their hypothesis using empirical analysis in Latin American markets, particularly in Latin America between Mexico, Brazil, Chile and Colombia, showing that the Brazilian stock market index (BOVESPA) is a regional volatility "engine. Interconnectedness channels carry political and/or economic instability from Brazil to neighboring markets within seconds. In Asian markets it is observed that similar hierarchical structure is found with China (SSEC). As a result of the financial liberalization measures taken by the Chinese government and its role in the global supply chain, China has become a more systemic player "exporting volatility" to the entire EM world, according to Zhang et al. (2020a) and Yadav et al. (2022). These regional hotspots can generate “secondary waves of volatility” in the markets around them without any global shock.

Volatility in emerging market (EM) markets can be broader that just equity, and can instead appear as a "chain reaction" in other asset classes. The price of internationally traded commodities is the most important one in this chain in many developing economies. The result of "cross-asset spillover" obtained by Mensi et al. (2013) indicates that during crises, the correlation between the volatility of the oil and gold prices and the equity markets of EMs rises significantly. Oil price volatility, for instance, can impose selling pressure on the stock market in energy importing EM countries due to inflation and current account deficits, and exchange volatility as a result of currency devaluation. This drives the equity, currency and commodity markets into a "volatility block", making most conventional portfolio diversification or hedging strategies ineffective for investors. The literature is all in agreement that this multi-faceted, intertwined relationship needs to be managed if local financial stability is to be maintained.

Over the past ten years the financial system has been going digital, bringing a new player into the literature of volatility spillovers: crypto assets. The findings in recent work by Zeng, Yang and Shen (2020) and Corbet et al. (2018) reveal that the linkages of the leading crypto assets with EM markets, especially after 2020, have changed significantly via the "speculative sentiment" path. The high ranking garnered by 'Crypto Volatility' in our bibliometric analysis of ‘Trending Topics' shows that these digital assets are now systemic and regularly ‘inject’ risk into traditional markets. Volatile cryptocurrency markets have the potential to quickly affect the risk appetite of the broader EM investor community and to knock on doors across the globe via “cyber spillover” effects. The volatility in traditional tech and financial stocks is driven by a cryptocurrency exchange liquidity crisis or regulatory news, meaning that this volatility isn't just caused by macroeconomic fundamentals.

Geopolitical tensions are one of the most harmful ways to transmit volatility in the international financial system, not just a symptom of an economic crisis or a health crisis, such as a pandemic. The index of geopolitical risk (GPR) is built by Caldara and Iacoviello (2022) to capture the effect of regional events like conflicts, terrorist attacks and political instability on investors' risk appetite. Emerging markets are disproportionately affected by geopolitical risks via the ‘financial vulnerability’ channel. During such tension, emerging market countries, especially those on energy routes or at the direct disposal of a conflict in neighbouring areas, see their stock market indices making sharp corrections, as well as their local currencies being subjected to extreme volatility, with capital flight. Empirical findings reveal that the volatility created by geopolitical risk is "persistent," and traditional portfolio diversification tools provide limited protection against such systemic shocks.

When examining the spread of volatility among asset classes in emerging markets, the search for a "safe haven" is of central importance in literature. The theoretical framework put forward by Baur, Lucey, and McDermott (2010) questions whether traditional commodities like gold serve as a refuge for investors during periods of peak stock market volatility. Empirical findings show that during periods of stress in EM markets where local currencies devalue and stock market volatility increases, the connectedness between gold, government bonds, and equities decreases, and sometimes even turns negative. However, network analyses of the type described by Diebold and Yılmaz (2014) demonstrate that this "safe haven" feature is time-limited, and that in the deepening phases of the crisis, all asset classes enter a single risk cycle, becoming interdependent. This situation reveals that dynamic asset allocation is a far more critical risk management tool for EM investors than static portfolio management.

6. Discussion and Suggestions for Future Research

The bibliometric network analysis and co-occurrence mapping conducted as part of this research strikingly reveals the evolution of the emerging markets literature over the last two decades. According to the analysis results, studies that focused on "market efficiency" and "GARCH modeling" in the early 2010s have radically shifted towards "connectedness networks" and "economic policy uncertainty" (EPU) themes after 2020. The largest thematic cluster revealed in the VOSviewer visualizations consists of studies examining the asymmetric effects of global financial spillover on EM markets. This demonstrates that the literature is now focusing not only on local volatility measurement but also on the international transfer mechanisms of systemic risk. This thematic change, especially the impact of “Black Swan” events, shows that literature currently combines financial crises with health crises such as pandemics under the same umbrella of risk. This is considered the most tangible sign that financial econometrics has acquired a multidisciplinary character.

The findings of the present systematic review and bibliometric mapping study suggest that the volatility of emerging markets (EM) is too complex, asymmetric and sensitive to external shocks to be accounted for by rational economic data alone. The literature notion of “good volatility” (positive return focus) vs “bad volatility” (negative shock focus) (Bollerslev (1986) and Li and Zhao (2020)) when applied to EM markets, reveals that investors’ reaction to negative news flows is statistically much more severe and persistent than to positive news. This situation makes the market susceptible to speculative attacks and sudden liquidity shortages along with 'information asymmetry' and 'institutional fragility', which are structural characteristics of EM markets. The “noise trader” effect is even more powerful in the digitalized financial world where social media sentiment and algorithmic trading can create “artificial volatility bursts” in EM markets, as pointed out by Antweiler and Frank (2004). These findings, which are central to our discussion, highlight that volatility is not just a function of past price movements but also a product of the global digital ecosystem.

Empirical performance analyses of econometric models reveal a dramatic loss of predictive power for traditional models with fixed parameters during crises in emerging market (EM) economies, due to their chaotic and regime-shifting nature. The method with the lowest predictive error (MSE) is the Dynamic Model Mean (DMA) approach, pioneered by Zhang et al. (2020) and Koop and Korobilis (2012), which is able to embed structural breaks in these markets in the model instantaneously. However, the GARCH-MIDAS model (as discussed by Kuttner 2001) allows a more refined partitioning of monetary policy shocks and EPU shocks on the stock market by combining high and low-frequency data. This methodological aspect of our discussion provides a scientific basis for the need for actors managing risk in EM markets to transition from one fixed model to adaptive and hybrid (econometrics + machine learning) structures that evolve based on the freshness of the data.

The results have important implications for central banks and capital market regulators in developing countries: EM economies cannot prevent financial volatility from happening by relying solely on local macroeconomic stability (Umar et al. 2021) for the Latin American example), international spillover channels can circumvent local controls, so policymakers should monitor not only stock market indices but also exchange rate volatility, CDS premiums, the global VIX index, and even the interconnection ratios in crypto-currencies, therefore increasing policy transparency and stabilizing EPU (Economic Policy Uncertainty) are the basic tools to reduce artificial market volatility by lowering investors' "uncertainty premium," and redesigning "circuit breaker" mechanisms triggered during crises to include "interconnectedness speed" as an indicator for triggering the mechanism would be a wise step to contain the contagion effect.

Traditional diversification strategies using asset allocation in EM, which rely on diversification among equities in different countries and to alternative assets with negative linkages in their return series (e.g., gold, commodities, or low-beta bonds), are failing to provide portfolio diversification benefits for individual and institutional investors as the correlation of all asset classes tends to 1 during periods of global stress (Kenourgios et al., 2011). In addition, to reduce the impact of "sentiment spillover," investors should use data-driven algorithms based on Modern HAR or GARCH-MIDAS, which do not reflect the noise of social media and also consider asymmetric risks (tail risk), to enhance the success of capital conservation.

The study has also uncovered research gaps in the volatility literature that focus on the 2026 vision. For instance, future studies are anticipated to delve into XAI (Explainable Artificial Intelligence) methods, which integrate machine learning and deep learning architecture with the theoretical discipline of econometric models. Additionally, additional studies of climate change risks (Physical and Transition Risks) and green bonds as "next-generation volatility drivers" in emerging market economies would contribute to the literature along sustainability lines. One area in which the study will significantly contribute to the literature regarding financial stability is by tracking the leakage channels of crypto assets and decentralized finance (DeFi) into traditional markets using high-frequency network analysis (Dynamic Connectedness Networks).

7. Conclusion and Policy Recommendations

This systematic literature review investigates the multidimensional nature of stock market volatility in emerging markets (EM) from a wide bibliometric and empirical perspective over the next 15 years, 2010-2025. The results unequivocally demonstrate that volatility in EM markets is now shaped by global economic policy uncertainty (EPU), liquidity cycles, and digital diffusion channels such as crypto assets, rather than by local macroeconomic variables. Bibliometric network analyses demonstrate a shift in the literature from traditional GARCH models to DMA, GARCH-MIDAS, and hybrid machine learning approaches capable of capturing nonlinear structures.

In light of the findings, the following strategic recommendations have been developed for the financial authorities and central banks of developing countries:

- Dynamic Risk Monitoring Systems: "Early Warning Systems" should be established that go beyond traditional volatility measures and include Diebold-Yılmaz-type correlation indices. These systems should monitor not only the stock market index but also cross-contamination risks in currency and commodity markets in real-time.
- EPU and Transparency Management: Given the multiplier effect of policy uncertainty on volatility, it is vital for economic administrations to adopt a transparent, predictable, and rule-based communication strategy to reduce market risk premium.
- Digital Asset Regulation: To control sentiment spillover from crypto asset markets, the regulatory mechanisms for cash flows and leveraged transactions between traditional markets and digital asset platforms should be strengthened.
- Liquidity Buffers Against Asymmetric Shocks: Proactive use of foreign exchange reserve management and swap lines by central banks against sudden capital outflows (sudden stops) caused by "bad volatility" will prevent financial contagion from spreading to the local real sector.

Finally, volatility management for EM is no longer just an issue of financial engineering but a strategic survival issue at the intersection of geopolitical, technological, and macroeconomic stability, and the literature for 2030 will be guided by future research on climate change financial risks and the impact of AI-based Black Box algorithms on market volatility.

References

Antweiler, W., & Frank, M. Z. (2004). Is all that talk just noise? The information content of internet stock message boards. *The Journal of Finance, 59*(3), 1259–1294. https://doi.org/10.1111/j.1540-6261.2004.00662.x

Aria, M., & Cuccurullo, C. (2017). bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics, 11*(4), 959–975. https://doi.org/10.1016/j.joi.2017.08.007

Ashraf, B. N. (2020). Stock markets' reaction to COVID-19: Cases or fatalities? *Research in International Business and Finance, 54*, 101249. https://doi.org/10.1016/j.ribaf.2020.101249

Assaf, A., Al-Shboul, M., Mokni, K., & Demir, E. (2025). Are Latin American stock markets connected? Exploring spillovers and the impact of risk factors. *Emerging Markets Review, 65*, 101253. https://doi.org/10.1016/j.ememar.2025.101253

Baker, S. R., Bloom, N., & Davis, S. J. (2016). Measuring economic policy uncertainty. *The Quarterly Journal of Economics, 131*(4), 1593–1636. https://doi.org/10.1093/qje/qjw024

Barberis, N., & Thaler, R. H. (2003). A survey of behavioral finance. In G. M. Constantinides, M. Harris, & R. M. Stulz (Eds.), *Handbook of the Economics of Finance* (Vol. 1, pp. 1053–1128). Elsevier. https://doi.org/10.1016/S1574-0102(03)01027-6

Baur, D. G., & Lucey, B. M. (2010). Is gold a hedge or a safe haven? An analysis of stocks, bonds and gold. *Financial Review, 45*(2), 217–229. https://doi.org/10.1111/j.1540-6288.2010.00244.x

Bekaert, G., & Harvey, C. R. (1997). Emerging equity market volatility. *Journal of Financial Economics, 43*(1), 29–77. https://doi.org/10.1016/S0304-405X(96)00889-6

Beltratti, A., & Morana, C. (2006). Structural change and long-run dependence in volatility of stock returns. *Economic Notes, 35*(3), 283–321. https://doi.org/10.1111/j.1468-0300.2006.00168.x
Bollerslev, T. (1986). Generalized autoregressive conditional heteroskedasticity. *Journal of Econometrics, 31*(3), 307–327. https://doi.org/10.1016/0304-4076(86)90063-1
Caldara, D., & Iacoviello, M. (2022). Measuring geopolitical risk. *American Economic Review, 112*(4), 1194–1225. https://doi.org/10.1257/aer.20191823
Chowdhury, E. K., Dhar, B. K., & Stasi, A. (2022). Volatility of the US stock market and business strategy during COVID-19. *Business Strategy & Development, 5*(1), 1–11. https://doi.org/10.1002/bsd2.203
Clements, M. P., & Hendry, D. F. (1998). *Forecasting economic time series.* Cambridge University Press. https://doi.org/10.1017/CBO9780511599286
Corbet, S., Meegan, A., Larkin, C., Lucey, B. M., & Yarovaya, L. (2018). Exploring the dynamic relationships between cryptocurrencies and other financial assets. *Economics Letters, 165*, 28–34. https://doi.org/10.1016/j.econlet.2018.01.004
Corsi, F. (2009). A simple approximate long-memory model of realized volatility. *Journal of Financial Econometrics, 7*(2), 174–196. https://doi.org/10.1093/jjfinec/nbp001
Diebold, F. X., & Yilmaz, K. (2012). Better to give than to receive: Predictive directional measurement of volatility spillovers. *International Journal of Forecasting, 28*(1), 57–66. https://doi.org/10.1016/j.ijforecast.2011.02.006
Diebold, F. X., & Yilmaz, K. (2014). On the network topology of variance decompositions: Measuring stock market connectedness. *Journal of Econometrics, 182*(1), 119–134. https://doi.org/10.1016/j.jeconom.2014.04.012
Engle, R. F. (1982). Autoregressive conditional heteroscedasticity with estimates of the variance of United Kingdom inflation. *Econometrica, 50*(4), 987–1007. https://doi.org/10.2307/1912773
Engle, R. F., Ghysels, E., & Sohn, B. (2013). Stock market volatility and macroeconomic fundamentals. *Review of Economics and Statistics, 95*(3), 776–797. https://doi.org/10.1162/REST_a_00300
Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *The Journal of Finance, 25*(2), 383–417. https://doi.org/10.2307/2325486
Forbes, K. J., & Warnock, F. E. (2012). Capital flow waves: Surges, stops, flight, and retrenchment. *Journal of International Economics, 88*(2), 235–251. https://doi.org/10.1016/j.jinteco.2012.03.006
Forbes, K. J., & Rigobon, R. (2002). No contagion, only interdependence: Measuring stock market co-movement. *The Journal of Finance, 57*(5), 2223–2261. https://doi.org/10.1111/0022-1082.00494
Gulen, H., & Ion, M. (2016). Policy uncertainty and corporate investment. *The Review of Financial Studies, 29*(3), 523–564. https://doi.org/10.1093/rfs/hhv050
Hansen, P. R., & Lunde, A. (2005). A forecast comparison of volatility models: Does anything beat a GARCH(1,1)? *Journal of Applied Econometrics, 20*(7), 873–889. https://doi.org/10.1002/jae.800
Jiang, Y., Liu, X., & Lu, Z. (2023). Financial uncertainty and stock market volatility. *European Financial Management, 30*(4), 1618–1667. https://doi.org/10.1111/eufm.12456
Kenourgios, D., Samitas, A., & Paltalidis, N. (2011). Financial crises and stock market contagion in a multivariate time-varying asymmetric framework. *Journal of International Financial Markets, Institutions and Money, 21*(1), 92–106. https://doi.org/10.1016/j.intfin.2010.08.005
Koop, G., & Korobilis, D. (2012). Forecasting inflation using dynamic model averaging. *International Economic Review, 53*(3), 867–886. https://doi.org/10.1111/j.1468-2354.2012.00704.x
Kuttner, K. N. (2001). Monetary policy surprises and interest rates: Evidence from the Fed funds futures market. *Journal of Monetary Economics, 47*(3), 523–544. https://doi.org/10.1016/S0304-3932(01)00055-1
Markowitz, H. (1952). Portfolio selection. *The Journal of Finance, 7*(1), 77–91. https://doi.org/10.1111/j.1540-6261.1952.tb01525.x
Mensi, W., Beljid, M., Boubaker, A., & Kang, S. H. (2013). Correlations and volatility spillovers across commodity and stock markets. *Economic Modelling, 33*, 9–15. https://doi.org/10.1016/j.econmod.2013.01.023
Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Medicine, 6*(7), e1000097. https://doi.org/10.1371/journal.pmed.1000097
Shleifer, A., & Vishny, R. W. (1997). The limits of arbitrage. *The Journal of Finance, 52*(1), 35–55. https://doi.org/10.1111/j.1540-6261.1997.tb03807.x
Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research, 104*, 333–339. https://doi.org/10.1016/j.jbusres.2019.07.039
Umar, Z., Gubareva, M., Naeem, M. A., & Vo, X. V. (2021). Return and volatility connectedness between high-tech stocks, financial, and equity markets: Evidence from the US and Latin American markets. *Research in International Business and Finance, 58*, 101497. https://doi.org/10.1016/j.ribaf.2021.101497
Van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics, 84*(2), 523–538. https://doi.org/10.1007/s11192-009-0146-3
Yadav, M. P., Sharma, S., Aggarwal, V., & Bhardwaj, I. (2022). Correlations and volatility spillover from China to Asian and Latin American countries: Identifying diversification and hedging opportunities. *Cogent Economics & Finance, 10*(1), 2132634. https://doi.org/10.1080/23322039.2022.2132634
Zaremba, A., Kizys, R., Aharon, D. Y., & Demir, E. (2020). Infected markets: Novel coronavirus, government interventions, and stock return volatility around the globe. *Finance Research Letters, 35*, 101597. https://doi.org/10.1016/j.frl.2020.101597
Zeng, T., Yang, M., & Shen, Y. (2020). Fancy bitcoin and conventional financial assets: Measuring market integration based on connectedness networks. *Economic Modelling, 90*, 209–220. https://doi.org/10.1016/j.econmod.2020.05.003
Zhang, Y., Lei, L., & Wei, L. (2020a). Forecasting the Chinese stock market volatility with international market volatilities: The role of regime switching. *The North American Journal of Economics and Finance, 52*, 101145. https://doi.org/10.1016/j.najef.2020.101145
Zhang, Y., Ma, F., & Wang, Y. (2019b). Forecasting crude oil prices with a large set of predictors: Can LASSO select powerful predictors? *Journal of Empirical Finance, 54*, 97–117. https://doi.org/10.1016/j.jempfin.2019.08.007
Zhang, Y., Wang, Y., & Ma, F. (2020). Forecasting the US market volatility: How to use international volatility information? *Journal of Forecasting, 40*(2), 274–292. https://doi.org/10.1002/for.2737